

## Water-Data Report 2006

**01467150 COOPER RIVER AT HADDONFIELD, NJ**

## DELAWARE RIVER BASIN

LOCATION.--Lat 39°54'11", long 75°01'17" referenced to North American Datum of 1983, Cherry Hill Township, Camden County, NJ, Hydrologic Unit 02040202, on right bank just upstream of dam on Wallworth Lake in Pennypacker Park, 200 ft upstream from bridge on State Highway 41 (Kings Highway) in Haddonfield, 0.6 mi upstream from North Branch Cooper River, and 7.7 mi upstream from mouth.

DRAINAGE AREA.--17.0 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR NJ-1969: 1967(M). WDR NJ-82-2: Drainage area.

GAGE.--Water-stage recorder above concrete dam. Datum of gage is 9.29 ft above NGVD of 1929.

REMARKS.--Records good except for daily discharges below 40 ft<sup>3</sup>/s, which are fair. Bypass gates were installed on both ends of the dam in August 1987. Occasional regulation at low flow from small lakes and wastewater treatment plants (prior to summer 1987). Several measurements of water temperature were made during the year. Satellite gage-height telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and (or) maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct 08	2200	*831	*3.34
Jan 03	0645	537	2.85
Jun 02	0400	559	2.89
Jun 03	0345	532	2.84
Jun 28	0930	575	2.92
Jul 06	0845	597	2.96
Aug 28	0915	679	3.10
Aug 30	0030	575	2.92
Sep 02	1545	603	2.97
Sep 05	1645	626	3.01

## 01467150 COOPER RIVER AT HADDONFIELD, NJ—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**  
**DAILY MEAN VALUES**  
[*e*, estimated]

<b>Day</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>
<b>1</b>	6.9	13	39	28	27	16	14	11	19	21	11	20
<b>2</b>	6.7	13	26	65	24	23	14	11	272	44	10	416
<b>3</b>	7.2	13	20	318	41	23	16	11	231	73	10	109
<b>4</b>	6.6	13	31	63	42	17	15	11	36	28	9.1	29
<b>5</b>	6.6	14	26	35	36	16	16	10	23	29	8.6	246
<b>6</b>	6.8	14	27	29	26	16	16	11	17	302	7.4	115
<b>7</b>	8.1	14	21	25	23	16	15	10	36	55	7.0	31
<b>8</b>	328	14	18	23	21	15	76	9.7	39	24	6.4	20
<b>9</b>	318	15	40	22	20	15	43	9.2	61	17	6.2	16
<b>10</b>	36	17	32	21	20	15	25	8.8	35	14	12	14
<b>11</b>	53	14	23	22	22	16	18	10	19	12	9.9	13
<b>12</b>	63	14	20	24	32	34	15	71	15	12	6.5	12
<b>13</b>	55	14	18	24	33	23	14	20	13	22	6.6	12
<b>14</b>	240	14	16	74	30	19	14	13	13	14	6.5	27
<b>15</b>	60	14	17	56	39	17	15	71	13	12	6.0	76
<b>16</b>	26	23	246	31	49	16	15	64	11	12	5.6	34
<b>17</b>	18	43	53	25	51	15	13	25	11	11	5.8	19
<b>18</b>	16	18	31	131	31	15	12	16	11	11	5.9	15
<b>19</b>	15	15	25	59	24	15	11	32	11	10	6.2	13
<b>20</b>	14	15	21	32	23	14	10	17	11	8.6	6.6	13
<b>21</b>	19	20	19	27	21	15	10	14	11	7.7	6.9	11
<b>22</b>	65	181	18	23	18	15	76	10	11	53	7.1	9.8
<b>23</b>	53	52	18	184	19	15	109	9.3	14	21	6.3	10
<b>24</b>	36	25	18	60	18	15	64	8.5	16	9.6	6.2	14
<b>25</b>	165	17	37	38	17	17	26	8.8	51	9.0	6.1	16
<b>26</b>	64	17	65	29	17	44	20	12	63	8.8	73	11
<b>27</b>	30	16	31	25	16	24	15	11	31	8.7	71	11
<b>28</b>	22	15	24	24	16	19	14	9.5	292	113	e328	10
<b>29</b>	18	21	46	28	---	17	13	9.1	70	29	130	25
<b>30</b>	16	180	44	29	---	15	11	9.0	41	15	191	11
<b>31</b>	14	---	32	31	---	15	---	8.8	---	12	30	---
<b>Total</b>	1,792.9	868	1,102	1,605	756	567	745	551.7	1,497	1,018.4	1,008.9	1,378.8
<b>Mean</b>	57.8	28.9	35.5	51.8	27.0	18.3	24.8	17.8	49.9	32.9	32.5	46.0
<b>Max</b>	328	181	246	318	51	44	109	71	292	302	328	416
<b>Min</b>	6.6	13	16	21	16	14	10	8.5	11	7.7	5.6	9.8
<b>Cfsm</b>	3.40	1.70	2.09	3.05	1.59	1.08	1.46	1.05	2.94	1.93	1.91	2.70
<b>In.</b>	3.92	1.90	2.41	3.51	1.65	1.24	1.63	1.21	3.28	2.23	2.21	3.02

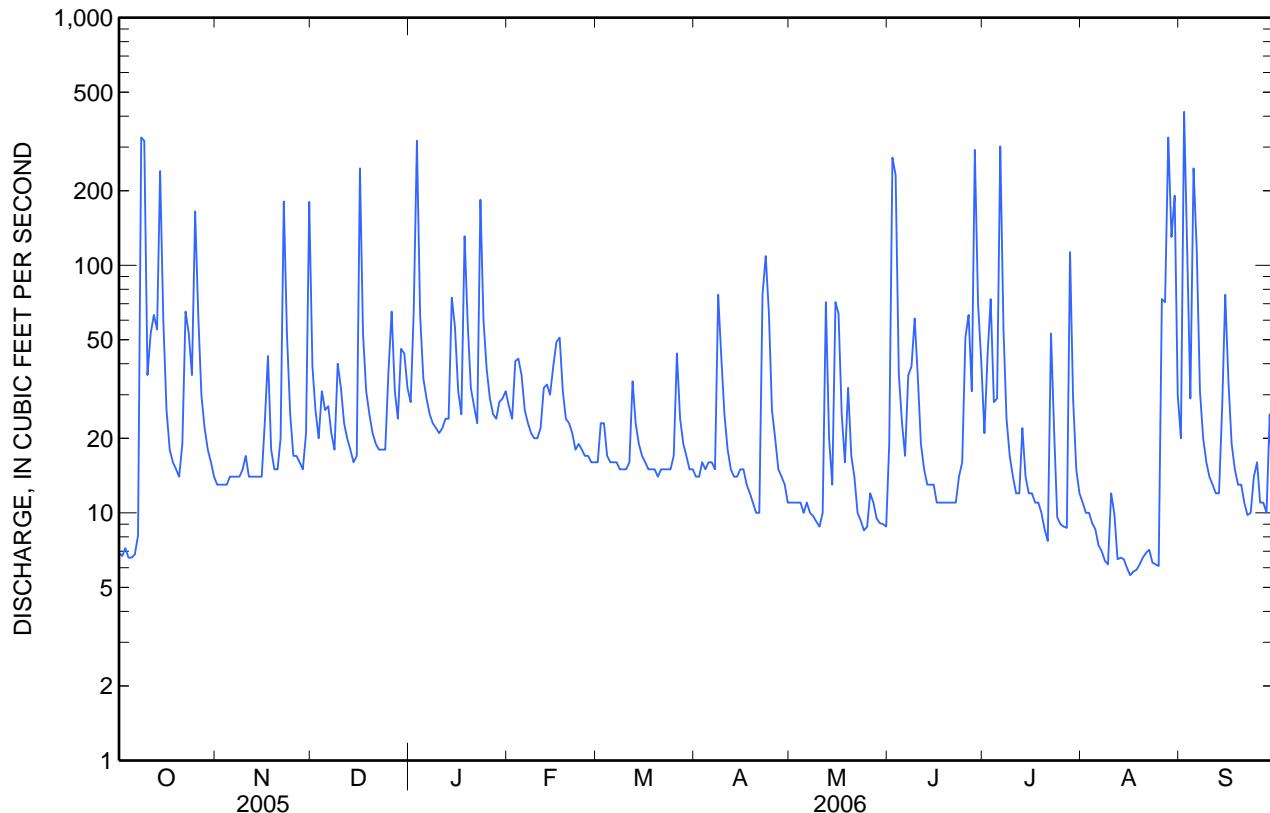
**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2006, BY WATER YEAR (WY)**

	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>
<b>Mean</b>	26.0	29.8	37.0	37.1	36.0	41.7	39.4	33.8	29.8	30.9	28.0	26.2
<b>Max</b>	57.8	79.6	85.3	97.8	76.1	78.9	99.4	66.7	61.5	88.7	97.6	65.8
(WY)	(2006)	(1973)	(1997)	(1978)	(1979)	(1984)	(1983)	(1983)	(2003)	(2004)	(1971)	(1975)
<b>Min</b>	9.26	8.03	8.21	14.6	11.0	18.3	15.1	14.2	10.9	10.5	7.79	5.67
(WY)	(1966)	(2002)	(1999)	(1992)	(2002)	(2006)	(1992)	(1965)	(1988)	(1999)	(1966)	(2001)

**SUMMARY STATISTICS**

	Calendar Year 2005		Water Year 2006		Water Years 1964 - 2006	
<b>Annual total</b>	11,748.8		12,890.7			
<b>Annual mean</b>	32.2		35.3		33.0	
<b>Highest annual mean</b>					50.6	1973
<b>Lowest annual mean</b>					15.6	2002
<b>Highest daily mean</b>	339	Apr 2	416	Sep 2	1,510	Aug 28, 1971
<b>Lowest daily mean</b>	6.6	Sep 24	5.6	Aug 16	1.2	Jun 27, 1964
<b>Annual seven-day minimum</b>	6.9	Sep 30	6.1	Aug 13	3.6	Sep 4, 2001
<b>Maximum peak flow</b>			831	Oct 8	3,300	Jul 13, 2004
<b>Maximum peak stage</b>			3.34	Oct 8	6.27	Jul 13, 2004
<b>Instantaneous low flow</b>			5.5	Many days	<sup>a</sup> 0.80	Nov 13, 1972
<b>Annual runoff (cfsm)</b>	1.89		2.08		1.94	
<b>Annual runoff (inches)</b>	25.71		28.21		26.34	
<b>10 percent exceeds</b>	55		64		58	
<b>50 percent exceeds</b>	18		18		21	
<b>90 percent exceeds</b>	9.1		9.1		10	

<sup>a</sup> Regulation from unknown source.



**01467150 COOPER RIVER AT HADDONFIELD, NJ—Continued****WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1968-79, 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1968 to September 1969. WATER TEMPERATURE: March 1968 to August 1969, recorded once daily; October 1998 to September 2001, recorded hourly.

REMARKS.--Total nitrogen (00600) equals the sum of filtered ammonia plus organic nitrogen (00623), filtered nitrite plus nitrate nitrogen (00631), and total particulate nitrogen (49570). Bacteria samples were collected synoptically over a 30-day period during the summer.

COOPERATIVE NETWORK SITE DESCRIPTOR: Urban Land Use Indicator and Low-Level Mercury Assessment special study site, New Jersey

Department of Environmental Protection (NJDEP) Watershed Management Area 19. Samples on Oct. 13 and 21 were for the low-level mercury assessment.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of the NJDEP. Bacteria samples were provided by the local county health department under the direction of the NJDEP through the County Environmental Health Act. Determinations of filtered ammonia, filtered orthophosphorus, BOD, total suspended residue, ammonia+organic nitrogen in bed sediment, phosphorous in bed sediment, fecal coliform, E. coli, and enterococcus bacteria were performed by the NJ Department of Health and Senior Services.

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 1 of 4

[Remark codes: <, less than; E, estimated.]

Date	Time	Sample type	Instan- taneous dis- charge, cfs (00061)	Turbdty white light, det ang 90+/-30	UV absorb- ance, 254 nm, wat flt	UV absorb- ance, 280 nm, wat flt	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm (00095)	Temper- ature, air, deg C (00020)
				NTRU (63676)	/cm (50624)	/cm (61726)	mm Hg (00025)	mg/L (00300)	percent of sat- uration (00301)	units (00400)	25 degC (00095)	deg C (00020)
<b>Oct</b>												
13...	1140	Field Blank	--	--	--	--	--	--	--	--	--	--
13...	1200	Environmental	42	17	--	--	760	6.6	68	6.5	202	17.2
21...	1045	Field Blank	--	--	--	--	--	--	--	--	--	--
21...	1100	Environmental	15	28	--	--	767	7.1	68	7.0	262	11.0
<b>Nov</b>												
03...	1000	Environmental	13	26	.106	.083	768	8.1	71	7.2	286	8.8
<b>Feb</b>												
07...	1000	Environmental	23	18	.166	.135	760	10.0	75	7.5	320	--
<b>May</b>												
04...	0900	Environmental	10	30	.111	.086	760	6.8	69	7.4	302	16.7
<b>Aug</b>												
08...	1000	Environmental	6.6	52	.097	.077	764	6.0	74	6.5	275	27.2

## 01467150 COOPER RIVER AT HADDONFIELD, NJ—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 2 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO <sub>3</sub> (00900)	Calci- um water, mg/L (00915)	Magnes- ium, water, mg/L (00925)	Potas- sium, water, mg/L (00935)	Sodium, water, mg/L (00930)	ANC, wat unf			Chlor- ide, lab, mg/L as CaCO <sub>3</sub> (90410)	Fluor- ide, water, mg/L (00950)	Silica, water, mg/L (00955)	Sulfate water, mg/L (00945)	Residue water, filtr, sum of consti- tuents mg/L (70301)	Residue on evap. 180degC wat flt mg/L (70300)
							fixed end pt,	Chlor- ide, lab, mg/L as CaCO <sub>3</sub> (90410)	Fluor- ide, water, mg/L (00950)						
<b>Oct</b>															
13...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
13...	16.4	--	--	--	--	--	--	--	--	--	--	--	--	--	
21...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
21...	13.5	--	--	--	--	--	--	--	--	--	--	--	--	--	
<b>Nov</b>															
03...	9.6	67	18.3	5.06	4.28	20.4	28	40.9	.18	13.3	25.9	147	148		
<b>Feb</b>															
07...	3.5	65	18.0	4.88	3.48	31.8	32	55.8	.15	10.7	23.2	169	181		
<b>May</b>															
04...	15.8	68	18.9	4.93	4.11	24.9	33	50.4	.23	12.4	23.2	160	172		
<b>Aug</b>															
08...	25.6	66	17.9	5.17	4.41	19.6	32	42.0	.23	15.2	23.9	149	170		

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 3 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	Residue total at 105 deg. C, sus- pended, mg/L (00530)	Ammonia		Nitrite + nitrate water, fltrd, mg/L as N (00623)	Partic- ulate nitro- gen, water, fltrd, mg/L as N (00608)	Total nitro- gen, water, fltrd, mg/L (00631)	Total nitro- gen, water, unfltrd mg/L (00602)	Ortho- phosphate, water, fltrd, mg/L as P (00600)	Phos- phorus, water, fltrd, mg/L (00671)	Phos- phorus, water, unfltrd mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Total carbon, suspnd sediment total, mg/L (00694)	Inor- ganic carbon, suspnd sediment total, mg/L (00688)	Organic carbon, suspnd sediment total, mg/L (00689)
		total org-N, water, mg/L as N (00608)	Ammonia water, mg/L as N (00608)											
<b>Oct</b>														
13...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--	--	--
<b>Nov</b>														
03...	16	.44	.146	.31	.13	.75	.88	E.004	.005	.176	1.3	<.1	1.3	
<b>Feb</b>														
07...	6	.48	.198	.41	.20	.89	1.1	E.006	.009	.20	1.2	<.1	1.2	
<b>May</b>														
04...	22	.46	.202	.19	.30	.65	.95	.017	.006	.29	2.2	<.1	2.2	
<b>Aug</b>														
08...	30	.66	.272	.28	.41	.94	1.4	E.008	.018	.26	2.6	<.1	2.5	

## 01467150 COOPER RIVER AT HADDONFIELD, NJ—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER**  
**2006**

Part 4 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	BOD, Organic carbon, water, fltrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Boron, water, fltrd, ug/L (01020)	Mercury water fltrd, low level, ng/L (50287)
<b>Oct</b>				
13...	--	--	--	<.04
13...	--	--	--	1.60
21...	--	--	--	.07
21...	--	--	--	.48
<b>Nov</b>				
03...	3.0	<1.0	41	--
<b>Feb</b>				
07...	3.0	E1.7	34	--
<b>May</b>				
04...	3.1	<1.1	41	--
<b>Aug</b>				
08...	2.8	<1.0	42	--

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 1 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	Time	pH bed sedimnt std	Ammonia + org-N, bed sed total, mg/kg (70310)	Phos- phorus, bed sedimnt total, mg/kg (00626)	Total carbon, bed sedimnt total, g/kg (00668)	Inor- ganic carbon, bed sedimnt total, g/kg (00693)	Arsenic bed sedimnt total, ug/g (00686)	Cadmium bed sedimnt recover -able, ug/g (64847)	Chrom- ium, bed sedimnt recover -able, ug/g (01028)	Cobalt bed sedimnt recover -able, ug/g (01029)	Copper, bed sedimnt recover -able, ug/g (01038)	Iron, bed sedimnt total, ug/g (01043)	Lead, bed sedimnt recover -able, ug/g (01170)
Aug 08...	1000	7.11	110	6,700	6.4	<.2	3.8	.120	9.5	.790	4	6,900	23

## 01467150 COOPER RIVER AT HADDONFIELD, NJ—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 2 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	Manganese, bed sediment, recoverable, ug/g (01053)	Mercury bed sediment, recoverable, ug/g (71921)	Nickel, bed sediment, recoverable, ug/g (01068)	Selenium, bed sediment, recoverable, ug/g (64848)	Zinc, bed sediment, recoverable, ug/g (01093)	1,2-Dimethylbenzene, bed sediment, <2 mm, ug/kg (49403)	1,6-Dimethylbenzene, bed sediment, <2 mm, ug/kg (49404)	1-Methyl-9H-naphthalene, bed sediment, <2 mm, ug/kg (49398)	1-Methylphenanthrene, bed sediment, <2 mm, ug/kg (49410)	1-Methylpyrene, bed sediment, <2 mm, ug/kg (49388)	236Tri-methyl-naphthalene, bed sediment, <2 mm, ug/kg (49405)	2,6-Dimethyl-naphthalene, bed sediment, <2 mm, ug/kg (49406)	2-Ethyl-naphthalene, bed sediment, <2 mm, ug/kg (49948)
Aug 08...	15	.020	2.0	.1	31	<51	E8	E10	E10	E9	<51	E8	<51

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 3 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	2-Methyl-anthra-[4H-Cyclo-lopenta-fluor-ene, bed sediment, <2 mm, bs <2mm ug/kg (49435)	4H-Cyclo-lopenta-fluor-ene, bed sediment, <2 mm, wsv nat ug/kg (49411)	9H-Fluor-ene, bed sediment, <2 mm, wsv nat ug/kg (49399)	Ace-naphth-ylene, bed sediment, <2 mm, wsv nat ug/kg (49429)	Ace-naphth-ylene, bed sediment, <2 mm, wsv nat ug/kg (49428)	Anthra-cene, bed sediment, field, <2 mm, ug/kg (49434)	Benzene, [a]-anthra-cene, bed sediment, field, <2 mm, ug/kg (49436)	Benzene, [a]-pyrene, bed sediment, field, <2 mm, ug/kg (49389)	Benzene, [b]-fluor-pyrene, bed sediment, field, <2 mm, ug/kg (49458)	Benzene, [ghi]-peryl-fluor-ene, bed sediment, field, <2 mm, ug/kg (49408)	Benzene, [k]-fluor-anthene, bed sediment, field, <2 mm, ug/kg (49397)	Chrysene, bed sediment, field, <2 mm, ug/kg (49450)	Dibenzo-[a,h]-anthra-cene, bed sediment, field, <2 mm, ug/kg (49461)
Aug 08...	E18	E16	E14	E9	E5	E29	69	E51	71	E36	E30	E50	E22

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 4 of 4

[Remark codes: &lt;, less than; E, estimated.]

Date	Fluor-anthene, bed sediment, <2 mm, wsv nat field, <2 mm ug/kg (49466)	Indeno-[1,2,3-cd]pyrene, bed sediment, <2 mm, wsv nat field, <2 mm ug/kg (49390)	Iso-phorone, bed sediment, <2 mm, wsv nat field, <2 mm ug/kg (49400)	Naphth-alene, bed sediment, <2 mm, wsv nat field, <2 mm ug/kg (49402)	p-PCBs, bed sediment, <2 mm, ug/kg (39519)	Cresol, bed sediment, <2 mm, ug/kg (49451)	Phenanthrene, bed sediment, <2 mm, ug/kg (49409)	Phenanthri-dine, bed sediment, <2 mm, ug/kg (49393)	Pyrene, bed sediment, <2 mm, ug/kg (49387)	Bed dry svd percent, <.063mm (80164)	Bed svedia percent, <.004mm (80157)
Aug 08...	160	E44	<51	E6	E3.05	<51	130	<51	120	.9	.4

**01467150 COOPER RIVER AT HADDONFIELD, NJ—Continued**

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

[Remark codes: >, greater than.]

Date	Time	Instan- taneous dis- charge, (00061)	Temper- ature, water, deg C (00010)	Enter- coccii,		E coli, MF, water, col/ (31649)	Fecal coli- form, MF, water, col/ (31633)	ECbroth MPN/ (31615)
				m-E	m-TEC			
<b>May</b>								
17...	0945	26	16.8	870	1,000	1,300		
24...	1000	8.2	16.8	240	320	500		
31...	0945	9.1	24.6	520	27,000	>16,000		
<b>Jun</b>								
07...	0950	15	19.0	590	300	70		
14...	0945	13	21.7	360	1,300	1,700		